

ABSTRACT

Methods and apparatus are disclosed for distributing fault indications and maintaining and using a data structure indicating faults to route traffic in a packet switching system. In one embodiment, a packet switching system detects faults and propagates indications of these faults to the input interfaces of a packet switch, so the packet switch can adapt the selection of a route over which to send a particular packet. Faults are identified by various components of the packet switching system and relayed to one or more switching components to generate a broadcast packet destined for all input ports (i.e., to each I/O interface in a packet switch having folded input and output interfaces). Other embodiments, generate one or more multicast or unicast packets. The I/O interface maintains one or more data structures indicating the state of various portions of the packet switching system. In one embodiment, an output availability table is maintained indicating over which path a particular destination may be reached, as well as a link availability vector indicating which output links of the input interface may be currently used. Using these as masks against possible routes in a fully functional system, the packet switching component (e.g., I/O interface) can identify which routes are currently available for reaching the destination of the received packet. These routes can then be selected between using one of numerous deterministic and non-deterministic methods.